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7590 09/25/2002  
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EXAMINER

METZMAIER, DANIEL S

ART UNIT	PAPER NUMBER
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1712

DATE MAILED: 09/25/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/936,061

Applicant(s)

HOY, EDGAR FRANKLIN

Examiner

Daniel S. Metzmaier

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-48 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-14, 16-21, 23 and 25-48 is/are rejected.
- 7) ☒ Claim(s) 15, 22 and 24 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☒ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

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### **DETAILED ACTION**

Claims 1-48 are pending in the instant application. The Form PTO-903 dated 23 November 2001 has been entered as Paper No. 2

#### ***Oath/Declaration***

1. The oath or declaration is defective. A new oath or declaration in compliance with 37 CFR 1.67(a) identifying this application by application number and filing date is required. See MPEP §§ 602.01 and 602.02.

Applicants claim priority under 35 USC 119(a)-(d) to U.S. application number 09/478,425, filed 01/06/2000, is improper because said U.S. application is not a foreign application in accordance with 35 USC 119(a)-(d). To the extent the instant application is a continuation-in-part or continuation of said U.S. Application, a claim for priority would be made under 35 USC 120 rather than 35 USC 119(a)-(d).

#### ***Drawings***

2. This application has been filed with informal drawings, which are acceptable for examination purposes only. Formal drawings will be required when the application is allowed.

#### ***Specification***

3. The disclosure is objected to because of the following informalities: the instant application does not properly cross-note the continuing status in the first sentence of the application. See 37 CFR 1.78.

Appropriate correction is required.

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***Claim Objections***

4. Claims 15, 22 and 24 are objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim should refer to other claims in the alternative only. See MPEP § 608.01(n). Accordingly, the claims 22 and 24 have not been further treated on the merits.

***Claim Rejections - 35 USC § 112***

5. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

6. Claims 1-14, 16-21 and 23 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for M' as at least one divalent metal cation and M'' as at least one trivalent metal cation, does not reasonably provide enablement for M as a Group IA elements such as H<sup>+</sup>, Li<sup>+</sup>, Na<sup>+</sup>, K<sup>+</sup>. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the invention commensurate in scope with these claims. The specification fails to contain an adequate written description of M (M' and M'' are collectively M. Please see 35 USC 112, second paragraph rejection below) defined to include Group IA elements such as H<sup>+</sup>, Li<sup>+</sup>, Na<sup>+</sup>, K<sup>+</sup>. The description is inadequate because: M' and M'' set forth in structure of claim 1 and at page 8 of the specification are defined as divalent and trivalent metal cations which do not include Group IA elements.

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

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The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claims 1-14, 16-21, 23, 25-40 and 42-47 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 1 is indefinite regarding the metes and bounds of the material or materials encompassed by the scope of the empirical formula set forth therein. Initially, applicants modify the structure set forth in claim 1 as "material or materials whose constituents substantially conform to the proportions of the empirical formula". It is unclear what proportions which are not set forth are intended by applicant. The metes and bounds of compounds, which differ from the explicit structure, is indefinite regarding how they differ and to what extent they differ.

The breadth of the ions forming the empirical overlap rendering the scope of materials encompassed indefinite. The ion  $\text{OH}^-$  is a monovalent ion which reads on A or B as now claimed. It is unclear for ions A or B which may be  $\text{OH}^-$ , how the skilled artisan should interpret the proviso statements defining  $qa + br$  cannot be greater than  $2m + 3n$ ,  $qa$  cannot equal  $2m + 3n$ , and  $(2m + 3n + qa + br)$  is less than 3.

Claim 1 is indefinite regarding the scope of the terms  $M'$  because the claim defines said compounds as divalent while the specification which also defines said element as divalent includes Group IA elements as possible materials therefore. Said material would not be monovalent.

Claim 2 is confusing because while  $M'$  and  $M''$  are provided for in claim 1,  $M$  is not provided for and lacks antecedent basis therein. Does applicant intend  $M'$  and/or

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M"? Please contrast with disclosure at the paragraph bridging pages 7 and 8.

Regarding the said recitation at page 8, it is not seen how Group IA can be said to define divalent metal cations.

In claim 4, it is unclear whether "calcined" modifies only "hydrotalcite" or "hydrotalcite, hydrotalcite-like compound, or mixtures thereof". Furthermore, it is unclear what are the metes and bounds of the term "hydrotalcite-like compound" since it is unclear what compounds are encompassed by said language and how said "like" compounds differ from hydrotalcite.

In claim 11, it is unclear wherein the method further comprises the materials set forth therein. It is suggested applicants include an active step such as -- adding -- after "comprising" or set forth wherein the method incorporates the claimed compounds, ie., -- said materials -- , -- said clay --, or -- said water -- further comprising.

In claim 14, it is unclear on what the ratio is based, e.g., weight/weight, moles/moles, weight/volume, volume/volume.

Claim 18 is indefinite because it is unclear because it refers to the material conforming to the formula of claim 1. Claim 1 further includes clay and water which at least clay is a further ingredients in claim 20 which is dependent on claim 18. It is unclear what is the scope of claim 18 and 20.

Claims 25-40 and 42-47 are indefinite because it is unclear what is the scope of the terms "hydrotalcite-like". It is unclear what are the metes and bounds of the claims, how and/or to what extent the hydrotalcite-like materials differ from hydrotalcite.

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***Claim Rejections - 35 USC § 102***

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

10. Claims 18-19, 25-29 and 35-41 are rejected under 35 U.S.C. 102(b) as being anticipated by Norman et al., 3,948,809. Norman et al (examples, claims, and column 2, line 25) discloses the calcination of bauxite waste liquors after addition of sodium carbonate or sodium hydroxide at temperatures of 400° C to 900° C. Said disclosure reads on the compositions and processes.

***Claim Rejections - 35 USC § 103***

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. Claims 1-4, 7, 10, 14, 18-21 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Burba, III et al., US 5,232,627, taken with Martin et al., US 5,728,363.

Burba, III et al '627 (column 2, lines 4 et seq; example 7; and claim 27) discloses making clay adducts with natural and synthetic hydrotalcites characterized as AHMMO. Said adducts are taught as rheological agents in aqueous compositions. Burba, III et al '627 (column 2, lines 16 et seq) discloses naturally occurring hydrotalcites contain some CO<sub>2</sub> in its structure which when thermally dehydrated yields an active magnesium

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aluminum oxide compound or oxyhydroxide compound. Burba, III et al '627 (example 7) teaches the compositions characterized as clay adducts with spinals activated above 500° C. Burba, III et al '627 (column 4, lines 10 et seq) teaches formula which patentees disclosed as the crystalline mixed metal hydroxides (MMOH) used to create the mixed metal oxides or oxy-hydroxides (AHMMO) have a structure having a value of  $(2m + 3n + qa + br)$  equal to or more than 3.

Burba, III et al '627 differs from the claims in the lack of the explicit structure set forth in the instant claims having a value of  $(2m + 3n + qa + br)$  of less than 3. To the extent the Burba, III et al '627 AHMMO materials differ from the instantly claimed materials in the value of  $(2m + 3n + qa + br)$ , said materials would have been obvious to one having ordinary skill in the art at the time of applicant's invention as an oxy-hydroxide or as a known activated hydrotalcite additive known in the art.

Martin et al (abstract; columns 3 and 4; column 5, line 12; and examples) discloses methods of making hydrotalcites and hydrotalcite-like products and characterizes (column 1, lines 18 et seq) said hydrotalcites as layered double hydroxides. Martin et al (column 5, line 12) discloses the hydrotalcites and hydrotalcite-like products are useful as viscosity/rheology control agents.

Martin et al differs from the claims in an explicit disclosure of an aqueous clay composition employing the Martin et al hydrotalcites.

These references are combinable because they teach calcined or activated hydrotalcites and associated structures. It would have been obvious to one of ordinary skilled in the art at the time of applicants' invention to employ the calcined hydrotalcites



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of Martin et al in the compositions of Burba, III et al '627 as an obvious art known activated hydrotalcites as taught in the Martin et al reference.

Furthermore, it would have been obvious to one of ordinary skilled in the art at the time of applicants' invention to employ the compositions of Burba, III et al '627 as art known viscosity/rheology control agent compositions which the Martin et al materials are taught to be useful.

13. Claims 1-10, 14, 16-21 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Burba, III et al., US 5,232,627, in view of Misra, US 4,656,156.

Burba, III et al '627 (column 2, lines 4 et seq; example 7; and claim 27) discloses making clay adducts with natural and synthetic hydrotalcites characterized as AHMMO. Said adducts are taught as rheological agents in aqueous compositions. Burba, III et al '627 (column 2, lines 16 et seq) discloses naturally occurring hydrotalcites contain some  $\text{CO}_2$  in its structure which when thermally dehydrated yields an active magnesium aluminum oxide compound or oxyhydroxide compound. Burba, III et al '627 (column 2, lines 43-47) teaches activating other metal compounds such as salts may require higher temperatures, more time, more atmospheric oxygen and/or  $\text{OH}^-$  ions.

Burba, III et al '627 differs from the claims in the lack of the explicit structure set forth in the instant claims having a value of " $(2m + 3n + qa + br)$ " of less than 3. To the extent the Burba, III et al '627 AHMMO materials differ from the instantly claimed materials in the value of " $(2m + 3n + qa + br)$ ", said materials would have been obvious to one having ordinary skill in the art at the time of applicant's invention as an oxyhydroxide or as a known activated hydrotalcite additive known in the art.

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Misra (abstract) discloses making activated synthetic hydrotalcite from industrial Bayer liquor. Misra (column 4, lines 35 et seq) discloses activating the compositions from about 500°C to 600°C in a rotary calciner.

Misra (column 5, lines 5 et seq) teaches adding the magnesium hydroxide to a solution containing ions of aluminate, carbonate, and hydroxide; such as those containing alkali hydroxide, alkali carbonate, and aluminium oxide. Said solutions derived from the Bayer process liquor in making alumina from bauxite.

These references are combinable because they teach activated hydrotalcite and clay adducts employing activated hydrotalcites. It would have been obvious to one of ordinary skill in the art at the time of applicants' invention to employ the Misra activated hydrotalcites in the compositions of Burba, III et al '627 as an art known activated hydrotalcite.

Claims 5 and 6 have been included herein since said calcination temperatures for the calcined hydrotalcites have not been shown to be critical. Attention is directed to the instant examples, which employ different calcining methods. Merely modifying the process conditions taught as a result-effective variable such as temperature and concentration is not a patentable modification absent a showing of criticality.

14. Claims 11-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Burba, III et al., US 5,232,627, taken with Martin et al., US 5,728,363, as applied to claims 1-4, 7 and 11 above, and further in view of Keilhofer et al., US 6,025,303, and/or either Watkins et al., US 4,580,633, or Wyganowski, US 5,036,915. Burba, III et al '627 and Martin et al viscosity/rheology control agents and compositions as set forth above.

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Burba, III et al '627 and Martin et al differ from the claims in the further addition of aluminum oxide and the concentration thereof.

Keilhofer et al (column 1 and claims) discloses solid based compositions as viscosity/rheology control compositions employing activated hydrotalcites and as component c) at least one solid base including aluminum trihydroxide.

These references are combinable because they teach viscosity/rheology control agents and compositions. It would have been obvious to one of ordinary skilled in the art at the time of applicants' invention to employ an aluminum hydroxide as disclosed in the Keilhofer et al reference as a suitable base material for suitable pH modification.

Watkins et al (abstract; column 4, lines 10 et seq; and column 10, lines 31 et seq) teaches the addition of nitrogen containing compounds as viscosity modifiers in subterranean formations, which contain fines including montmorillonites as the most common material encountered. Watkins et al (column 10, lines 31 et seq) teaches suitable nitrogen compounds include ammonium ion precursors which are water-soluble and hydrolyse in steam such as urea and thiourea.

Wyganowski (abstract and columns 9 to 10, lines 66 to 20; and column 12, lines 38-50) teaches urea as a rheological for clay compositions and pH modifier.

These references are combinable because they teach rheological clays and additives employed to modify clay compositions and formations. It would have been obvious to one of ordinary skilled in the art at the time of applicants' invention to employ urea or thiourea as a conventional additive in the Burba, III et al '627 compositions as a rheological or pH modifier for the clays therein.

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### ***Double Patenting***

15. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

16. Claims 1-14, 16-21, 23 and 25-48 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-8 of U.S. Patent No. 6,365,639 B1. Although the conflicting claims are not identical, they are not patentably distinct from each other because the breadth of the instant claims encompass the claimed invention in claims 1-8 of U.S. Patent No. 6,365,639 B1.

### ***Conclusion***

17. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel S. Metzmaier whose telephone number is (703) 308-0451. The examiner can normally be reached on 9:00 AM to 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Dawson can be reached on (703) 308-2340. The fax phone

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numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

A handwritten signature in black ink, appearing to read "Daniel S. Metzmaier".

**Daniel S. Metzmaier**  
**Primary Examiner**  
**Art Unit 1712**

DSM  
September 16, 2002